



Name: _____

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Geometry, Period _____

Due Date: Thu, Dec 5, 2014 **REMINDER: ALWAYS SHOW YOUR WORK!**

HW67_Exponential_Inequalities

Form A

**Geometry
Homework****1. Squares & Cubes** (showing work here is basically showing what you're plugging into the calculator)

$$(+13)^2 = \boxed{}$$

$$(+10)^2 = \boxed{}$$

$$(-7)^2 = \boxed{}$$

$$(-7 \cdot -7)$$

$$(+13)^3 = \boxed{}$$

$$(+10)^3 = \boxed{}$$

$$(-7)^3 = \boxed{}$$

$$(-7 \cdot -7 \cdot -7) =$$

2. Decimals

$$(0.6)^2 = \boxed{}$$

$$(-2.5)^2 = \boxed{}$$

$$(1.3)^2 = \boxed{}$$

$$(-2.5 \cdot -2.5)$$

$$(0.6)^3 = \boxed{}$$

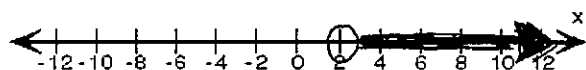
$$(-2.5)^3 = \boxed{}$$

$$(1.3)^3 = \boxed{}$$

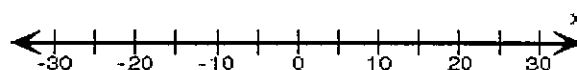
$$(-2.5 \cdot -2.5 \cdot -2.5)$$

3. Graphing Inequalities (solve & then graph)

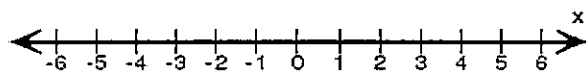
$$\begin{aligned} 7) \quad \frac{2x}{2} &> \frac{4}{2} \\ x &> 2 \end{aligned}$$



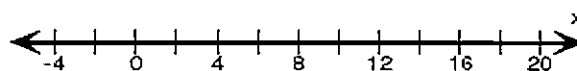
$$8) \quad x + 12 \leq 7$$



$$9) \quad x + 1 < 4$$



$$10) \quad x - 6 \leq 10$$



4. Square & Cube Roots

Example: $x^3 < 27$

$(x^3)^{1/3} < 27^{1/3} \rightarrow$ *this is the same as saying* $\sqrt[3]{x^3} = \sqrt[3]{27}$

$x < 3$

As a check, if $x = 4$ (outside the solution set), $x^3 = 64$, which does not fit the inequality (i.e., 64 is not less than 27). However, if $x = 2$ (inside the solution set), $x^3 = 8$, which does fit the inequality (i.e., 8 is less than 27).

1. If $x^2 < 9$, then $\sqrt{x^2} < \sqrt{9}$, so $x <$

2. If $x^2 > 144$, then $\sqrt{x^2} > \sqrt{144}$, so $x >$

3. If $x^2 \leq 81$, write an inequality for x .

$$\sqrt{x^2} \leq \sqrt{81}$$

$$x \leq \sqrt{81} =$$

4. If $x^3 < 27$, then $\sqrt[3]{x^3} < \sqrt[3]{27}$, so $x < 3$

5. If $x^3 > 216$, then $\sqrt[3]{x^3} > \sqrt[3]{216}$, so $x >$

6. If $x^3 \leq 81$, write an inequality for x .

$$\sqrt[3]{x^3} \leq \sqrt[3]{81}$$

$$x \leq \sqrt[3]{81}$$

6b. What is a number inside the solution set for #6? ____ What is a number outside the solution set? ____
Test both to see if your answer is correct. Show your work & explain if it proves you correct here:

5. One-Step Inequalities (solve for x)

1) $x + 8 > 11$

$$2) \left(\frac{4}{1}\right) \frac{x}{4} \leq \frac{3 \cdot 4}{1 \cdot 1}$$

$$x \leq 3 \cdot 4$$

3) $6 \geq 2x$

4) $2x < 6$

5) $x + 1 \geq 3$

6) $\frac{x}{5} < 2$

6. Multi-step inequalities (with exponents)

1. $x^2 + 14 \geq 30$

$$\begin{array}{r} -14 \\ -14 \end{array}$$

$$x^2 \geq 16$$

3. $\frac{x^2}{9} + 9 \leq 90$

4. $\frac{x^3}{9} + 9 \leq 90$

2. $2x^3 + 14 \geq 30$